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The Clover Stripper

By FRANK K. SWAIN

In Vol. I of THE CHRONICLE there are four notes on Clover Headers and three of them, all from the same source, show us how to construct them. In the fourth (p. 21-5), we learn that one was made and used in Alabama, with a slight improvement, but that it proved a complete failure and was laid aside. All were horse-drawn.

THE CLOVER STRIPPER

When Dr. Henry C. Mercer started to make his great collection at Doylestown in 1897, he found a little machine nailed to the rafters of a wagonhouse loft in the nearby Hilltown district. The farmer, an old man, said it was there when he bought the farm thirty years earlier but he did not know its name, what it was used for and had never disturbed it. The machine was placed in Dr. Mercer's private museum, where farmers came and went, but it remained unidentified for a year. Then Isaac Price, a neighbour, saw it and said it was a clover stripper and exactly like one used by him on his father's farm, in Hilltown, when a boy, (about 1850 or earlier).

We immediately took it to the Price farm where Isaac proceeded to strip the clover in the usual way while a boy followed with a rake to scrape back into the box the severed heads that caught in the teeth. When the box was filled, the machine was tilted over on one wheel and the heads rolled out in a little heap to wilt or dry before being gathered up into bags, hauled to the barn floor and spread out for thorough drying before being threshed with a grain or clover flail. The photograph here shown was made by me at the time. I have never seen a clover flail.

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Bonnet Notes
1857

By LAWRENCE B. ROMAINE

I sincerely hope that my readers will not take this dissertation seriously. What I know about the manufacture of bonnets in the middle of the nineteenth century could be poured into a thimble. However, I do feel that the small pamphlet which I have chosen as my text is worthy of attention and will prove interesting and amusing even to the most serious student of early American industry.

The title page of the pamphlet reads:

ADDRESSES

delivered at the

BONNET MANUFACTORY OF
MESSRS. A. E. DANIELS & SON
FRANKLIN, MASS.

occasioned by

Mr. A. R. Blake's presenting the Ladies with a Letter Box, and their presenting to him of a Gold Pen and Pencil.

Together with an Account of the Incidents therewith.

BOSTON

Printed by David Clapp
Over 184 Washington St.
1857

Such consideration of employees today seems lost in the whirl of mass production and competition. The whole affair seems like a Sunday School picnic. (Perhaps a bit of this today might be good for us all.) It is most surely a true and exact picture of American Industry of this period and should make us realize that the shrewd

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The Chronicle

Carpenters' Tool Notes

By Joseph E. Sandford

[It will be noted that the following important and valuable supplementary notes have been printed on only one side of the paper, as many of those who fortunately possess the book in question may wish to cut the article apart and interleave their copies with it at the points referred to. — Ed.]

The following material is based on marginal notes made from time to time through the years since its publication, in a copy of Dr. Henry C. Mercer's scholarly work *Ancient Carpenters' Tools* (The Bucks County Historical Society, Doylestown, Pennsylvania, 1929). They are largely the result of reading from sources not available to Dr. Mercer while his work was in progress.

Supplementary and fragmentary though they are, I trust that they will not be without interest even to those unacquainted with the book which inspired them.

The numbers after the subject titles are those of the pages in *Ancient Carpenters' Tools,* to which the notes refer.

Saw (p. 16). The ancient Egyptian wood-worker shown on the XVIII Dynasty tomb wall at Thebes, saws boards with an unframed saw. The vertical balk is lashed at its bottom to the top of a post.

Maul (p. 19). The maul or beetle of wood, the head bound with metal rings to keep the striking surface from splitting, was used by the ancient Romans. See A. Rich's *Companion to the Latin Dictionary* (London, 1849).

Walking Stick Board Measure (p. 50). Not mentioned. An instrument similar to that shown in Dr. Mercer's Fig. 48, but for measuring board-feet, i.e., the number of superficial feet in a board. It is a tapering, eight-sided oak stick fitted with a slightly convex, flanged brass head, one inch in diameter, and a brass ferrule one and one-half inches long. It measures thirty-six inches from the underside of the head flange to the tip of the ferrule. The sides or facets are marked with scales, running from the head to the tip, for finding the surface footage of boards from nine to sixteen feet long, inclusive.

The twelve-foot scale can be used as an inch-divided yard-stick. The scale lines make unbroken "circles" around the stick at one-foot intervals. Thus the stick can be used to find the length of the board—after which the proper scale is chosen, and the width of the board measured with it. The reading on the scale shows the number of superficial feet in the board.

This must have been an especially useful tool in the days of random widths.

Race Knife (p. 51). A forerunner of this marking tool was a two-pronged instrument resembling a short crowbar. It was called a *roinet* by the 17th Century French carpenter. With it he marked wooden morticed and tenoned pieces of wood for assembly. There were four named marks which he made with it—*Marc Franc, le contre-marc, le crochet* and *la patte d'oie.* When the pieces were many, he resorted to numerals, Roman numerals in all probability such as the old American carpenter used to help him match his mortised and tenoned joints — the same method by which his grandson marks screen frames.

Chalk Line (p. 53). There are two methods of marking with the snapped line, with wet pigment and with dry. Walter Miller in his *Daedalus and Thespis* (New York, 1929) quotes Sophocles (b. 495 B.C.—d. 405 B.C.) and the contemporary Euripides, to show that Greek masons used both white and red chalk on their lines, depending on the tone of the material to be marked. This may indicate an early use of the dry method.

The testimony of the Greek Anthology points to the use of wet ochre on the carpenter's line. The poet Philipus, who is supposed to have written in the second century A.D., speaks of the "straight running saw that follows the drops of red ochre" and "his taut ochre-stained line." Leonidas of Tarentum who wrote in the third century before Christ mentions "the line and ochre box" among the tools of the carpenter.

Red Ochre was the Rubrica Fabrilus of the ancient Romans, according to Savary, so called because of its use by artisans in wood and stone. In England, red ochre was called "raddle, reddle or ruddle" and in a quote from 1684 in the *Oxford English Dictionary* "Carpenter's reddle" survives.

Joint Hook (p. 59). Dr. Mercer does not mention this tool by name. Said Peter Nicholson in his *Architectural Dictionary* (London, 1835)—In some cases, where a great number of pieces are required to be wrought to the same angle, a stationary bevel called a "joint hook" is used.

Scriber (p. 61). The *traceret* of the French carpenter of 1674. It was used by joiners also. Richard Neve in *The City and County Purchaser* (London, 1726) says that the compass point may be used for this purpose. He makes no mention of the scriber or brad awl.

Lead Pencil (p. 61). Conrad Gesner, the celebrated Swiss naturalist, was the first to describe and picture the wood-encased graphite pencil. This he did in his *De omni rerum fossilum genere* published at Zurich in 1565.

While the architect and designer of mid-eighteenth century France made use of the lead pencil, the carpenter marked beams and other members with white chalk or *pierre noire* alias *crayon noire,* a name which seems to have been applied to various black-marking minerals.

The lead pencil was found in the English carpenter's tool-chest as early as 1798. The *Encyclopedia Britannica* (3rd ed.), reprinted at Philadelphia in that year, says that it was made by mixing pulverized black lead with sulphur and was coarser than the pencil used for fine drawings.

The Rule (p. 62). A jointed bronze rule was found among the tools in a Pompeiian mason's shop. It was hinged at the center.

N. Bailey's *English Dictionary* (2nd Ed. London, 1736) tells us that Scammozzi invented the common jointed two-foot rule which was called by his name. Scammozzi's rule is mentioned in John Kersey's *English Dictionary* (2nd Ed. London, 1715). Vincenzio Scammozzi, Italian architect and writer was born at Vincenza in 1552 and died in 1616.

From *Chamber's Cyclopedia* (Ed. 1752): "An instrument usually of box, twenty-four inches long and one and one-half broad, each inch being subdivided with eight parts. On the same side with these divisions is usually added Gunter's line of numbers. On the other side are the lines of timber and board measure, the first beginning at 82 (8½ in 1783 edition) and con-

(*Continued on page* 150, *column* 1)

Bonnet Notes

(*Continued from page* 147, *column* 3)

Yankee trader and merchant had a heart full of sentiment, beneath that stern exterior of which we read so much.

Although the aforementioned "INCIDENTS" are to be found at the end of the pamphlet after the "ADDRESSES," I think the reverse order is more logical.

INCIDENTS

"Knowing that some came in to breakfast, and left the table before others came in; in order to have them all there at one time, I went into the halls the day before, and told the ladies that I intended to make some remarks at the breakfast table the next morning. I also engaged Mr. Fairbanks to call their attention to the fact that I was about to commence my remarks, when I signified I was ready to make them. The morning and breakfast came and they were all there at one time. Mr. Fairbanks introduced me in a very appropriate manner, and I arose and made my remarks; and the way they all cheered signified that they had given satisfaction. We then repaired to the shop as usual—coming in one, two, three and four at a time. Mr. Rhodes was ready to receive them and made some of his original, enlarged, magnifying and highly entertaining remarks which occupied about half an hour. Mr. Fairbanks gave some specimens of the art of ventriloquism; then some four or five came in who do not board at the boarding house and said they wanted very much to hear my remarks: so I told them I would repeat them. In an instant the news was all over the shop, and you could not count the steps on the stairs. So they came pouring into the office—Bleachers, Blockers, Pressers, Sewers, Wirers; filling it so full that outsiders could not squeeze in. Then I repeated my remarks. They then said they wanted to hear about Maud Muller. So I recited the poem about Maud Muller and the assembly dispersed, as soon as it could be expected such a mass of human beings, pressed so compactly together could get separated.

"They soon after dispatched a messenger to Boston, to the well known house of Thomas Groom, to purchase a present for me. Mr. Rhodes went down to the depot to meet the messenger when the cars arrived from Boston; and the dexterity with which he transferred the present from the messenger's pocket to his own, would have astonished the professors of the magic art. About half past four, a gentleman from New York hinted to me about what was going on and at half past five there was such a getting upstairs that there could be no mistake about it. Mr. Brown soon came in and said that the Ladies wanted to see me in the Sewing Hall. I went with him and he introduced me to Miss Hill and Mrs. Esten, and the presentation took place.

"There were a few pleasant incidents connected with my last address: some of the Ladies presented me with a beautiful bouquet of artificial flowers at the conclusion of my remarks and all were well pleased with them.

"I must now state the last incident connected with these transactions; that my Pen has done its work and the documents are ready for the printer to give to them the more beautiful attractions of his art.

ALBIN R. BLAKE.

Franklin, April 6th, 1857."

To give Mr. Blake's address in full would not only take up the whole CHRONICLE but would soon become extremely boring. I shall try to pick out the most succulent portions.

MR. ALBIN R. BLAKE'S ADDRESS

January 1, 1857

"LADIES — You will expect me in rising to address you at this time to greet you all with 'A HAPPY NEW YEAR.' I rise somewhat embarrassed in the presence of so much of the beauty and intelligence of Franklin, not to make a speech, but to announce a simple fact; and as I do not often say much, I trust I shall be pardoned if I embellish it with more than my usual copiousness of language. . .

"Being somewhat associated with so many Ladies and having the presumption to suppose that they took more interest in me than if I were married, it became a matter of ambition with me to do something for their benefit—something to keep me in their memory even after I had married and gone away.

"Ladies, that service has been performed; it awaits your inspection; I therefore invite you to call in the office to see if it be anything that will benefit you."

MISS CARRIE HILL'S ADDRESS

"Mr. Blake, Sir:—

"You see before you the Ladies you have so highly complimented this morning. We have assembled to thank you for the surprise you prepared for us; that you should have thought of such an ingenious way to screen our letters from public gaze, is a matter of great wonder. . . . Often you have contributed cheer . . . etc. . . .Inspired with feelings of the deepest gratitude, and a high appreciation of your talents, especially that copiousness of language with which you are blessed, we present you with this Pen. There is magic in its touch . . . and when you have left us and entered into that blissful state of matrimony, let not the attractions of a loving wife lead you to forget those with whom you were associated here."

William Shakespeare broke his greatest tragedies with a touch of humor and his greatest comedies with a touch of the serious. Should I force upon you "Mrs. Esten's Remarks," "Mr. Albin R. Blake's Reply," and, last but far from least, "Mr. Albin R. Blake's Final Address," the humor would pall and the reader would tire (if he or she is still reading at this point).

I hope I leave you with an amusing picture of Early American Bonnet Manufacturing in Franklin, Mass. I also hope the picture will add a little to the cold facts of this industry. They were all one large family of workers. Perhaps the present world upheaval may lead back to times wherein the individual worker and employer may again shake hands and work together.

From MR. CALVIN P. CLARK:

"According to information which I have gathered from various sources, I understand that the Mason fruit jar was patented Nov. 30, 1858, by John L. Mason of New York City. Can you give me further information regarding this John L. Mason? Please cite sources for the information. Please tell me what books or other publications might contain such information."

Tool Notes

(*Continued from page* 148, *column* 3)

tinued to 36 near the other end; the latter is numbered from 7 to 36, four inches from the other end."

"The application of the inches in measuring lengths, breadths, etc., is obvious . . . The use of the other side is all we need here meddle with."

"1. *The breadth of any surface, as board, glass, etc., being given, to find how much in length makes a square foot.* Find the number of inches the surface is broad, in the line of board-measure, and right against it, on the inches side, is the number of inches required. Thus, if the surface were 8 inches broad, 18 inches will be found to make a superficial foot."

"Or, more readily, thus. Apply the *rule* to the breadth of the board or glass, that end marked 36 being even with the edge; the other edge of the surface will show the inches and quarters of inches which go to a square foot.

"To find the content of a given surface. Find the breadth, and how much makes one foot; then turn that over as many times as you can upon the length of the surface, and so many feet does the surface contain.

"2. *Use of the table at the end of the board-measure.* If a surface be one inch broad, how many inches long will make a superficial foot? Look in the upper row of figures for one inch, and under it, in the second row, is 12 inches, the answer to the question.

"3. *Use of the line of timber-measure.* This resembles the former; for, having learnt how much the piece is square, look for that number on the line of timber-measure, the space thence to the end of the *rule* is the length, which, at that breadth, makes a foot of timber. Thus, if the piece be 9 inches square, the length necessary to make a solid foot of timber is 21⅓ inches. If the timber be small, and under 9 inches square, seek the square in the upper rank of the table, and immediately under it are the feet and inches that make a solid foot. Thus, if it be 7 inches square, 2 feet, 11 inches will be found to make a solid foot.

"If the piece be not exactly square, but broader at one end than another, the method is, to add the two together, and take half the sum for the side of the square. For round timber, the method is, to gird it round with a string, and to allow the fourth part for the side of the square. But this method is erroneous; for hereby you lose above 1-5 of the true solidity."

This particular type of carpenter's joint rule is not described in *Ancient Carpenters' Tools.*

THE LEVEL (p. 69). "From . . . remarks by Vitruvius . . . it is clear that the ordinary water-level, that is, a glass-tube which is filled with water and contains an air-bubble, was known and used as a levelling instrument."

The Technical Arts and Sciences of the Ancients by Albert Neuburger (New York, 1929). It is unfortunate that the passages in Vitruvius, on which this opinion is based, are not cited.

IRON SQUARE (p. 70). The French glazier of 1674 used a large square made of steel, according to Felibien's *Des Principes de L'Architecture* (Paris, 1674).

It is probable that this French work on the building crafts influenced Moxon. Most of the tools from the engraving from Moxon's edition of 1678—which Dr. Mercer says is the earliest known systematic grouped illustration of English carpenter's tools—are to be found in four plates from Felibien. There can be little doubt that Moxon's engraver had these French plates of 1674 before him as he worked.

THE SIDE REST (p. 73). This is called the "Side Hook" in P. Nicholson's *Architectural Dictionary* (London, 1835). "For cutting the shoulders of tenons."

TOOL HANDLE CLAMP (p. 74). This tool was not only used to hold tool-handles while being shaped with the draw knife, it was also used for making trenails.

DRAW BORE PINS (p. 75). Not mentioned. These are described in P. Nicholson's *Architectural Dictionary* (London, 1835) as "pieces of steel made in the form of the frustum of a cone, but rather taper, and inserted in handles, for drawing through the draw-bores of a mortise and tenon, in order to bring the shoulder of the rail close home to the abutment on the edge of the style; when this is effected, the draw-bore pins, if more than one is used, are to be taken out one at a time, and the holes filled up with wooden pegs."

AXE (p. 86). *The City and Country Purchaser and Builders Dictionary* by T. N. (London 1703) under the heading "Laths" says that after splitting lengths of timber with wedges, they cleave these split pieces (called Bolts) with their Dowl-ax, by the Felt grain. This is called "Felting." What was the Dowl-ax?

SAND PAPER (p. 135). Sand paper was an article of commerce in 18th century America. The *Boston Gazette* (September 10, 1764) contained an advertisement of sand and emery paper and again in November 19th of the same year.

HAND-SAW (p. 136). The hollow grasp hand-saw is shown with other carpenter's tools on a foot-stone in the church yard of St. John, sub Castro, Lewes, Sussex. The head-stone inscription — "In memory of Mark Sharp, Carpenter, Late of this Parish who died 26th Nov. 1741 aged 64 years." If the foot-stone is of that year it pre-dates Hogarth's engraving "Gin Lane" by nine years.

GRUTER'S SAW (p. 153). Gruter indicates that the saw drawing was in a collection of inscriptions made by Martin Smetius, which was edited by Lipsius and published in 1588. This would be fourteen years before Gruter's work.

THE BUHL SAW (p. 155). More correctly spelled Boule, from Andre Charles Boule, a French cabinet-maker who was born in Paris in 1642. He worked for nearly all the sovereigns of Europe. He died in 1732.

BREAST AUGER (p. 180). One of the earliest examples is found on the Bayeaux tapestry thought to have been embroidered soon after A.D. 1066. The 15th century date given by Dr. Mercer is a misprint for 13th century.

GIMLET (p. 203). "Yankee ingenuity is in a fair way to destroy John Bull's Gimblet trade in this country. The new twist gimblet is almost as much superior to the old English gimblets as the screw auger is to the old pod auger." *New York Post,* August 1, 1833.

MASTER OF FLEMALLE (p. 205). This painter has been identified as Robert Campin, who settled at Tournai in 1406 at the age of 28. The identification was made in 1900 by M. Hulin.

MANDREL LATHE (p. 221). "Mandrel" the *mandrin* of the French — the word from which mandrel comes. The *Oxford English Dictionary* says that it cannot be traced back of 1690 in

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Some Items from My Collection

By Mary Earle Gould

Compass or Dividers

Making the round bottoms and tops of tubs, buckets and boxes and the

oval bottoms and tops of boxes called for a marking tool to accomplish the work more quickly. Shown in the illustrations are two types of markers which were called compasses or dividers. At one end a sharp point was driven in, either a nail or any other piece of sharp metal. At the other end a piece of lead, slate or other metal was inserted to act as the marker. One type of marker was a piece of hickory sapling bent and held together by a crossbar driven into the wood near the ends. The other type was merely two pieces of wood fastened together by a small leather hinge. An adjuster was made by setting in a small piece of wood which was controlled by a screw, allowing the two arms to be separated as much as desired.

The process of marking a round cover was simple, as anyone who has handled a compass knows, but an oval cover was more complicated. Marks on the covers and bottoms show that each man had his own trick of making an oval. Some made two circles, starting one inside of the other and then drawing straight lines touching the edges of the two circles. Other more elaborate ways show on covers, many arcs lapping each other until the pattern looks like a school problem of geometry.

Grease Bucket

Man's first receptacle was probably of stone and later of wood. When wood was the material, a hollowed-out log was the first to be used, before the art of turning was generally practised. Logs were made into conductor pipes, pumps and mortars. The grease bucket, with the other name of "slush bucket," and the better name of "tar bucket," was fashioned from a log, six or seven inches in diameter and a foot long. The upper part was left larger so that holes might be bored at opposite sides through which leather thongs were strung. Holes to correspond were bored in the cover. The thong passed up one hole and down the other—not as the illustration shows, for the knot was removed and

not properly placed. Then the cover slid up and down on the thong and could not stray off. A loop about two feet long was left so the bucket might be fastened to the rear axle of the wagon. Filled with grease, slush or tar, it traveled to town or across country with market wagons or covered wagons. A slender stick was used in applying the grease to the wheel hubs and the springs, for a hole in the cover shows where the stick protruded from the bucket. Two iron bands hold the bucket together and one can well realize that its lifetime covers more than a century.

Lettering for Stencilling Names

An odd set of wooden stamps in an old tin milk-pan turned up at my door one day. Although of no great value as to art or science, its equal has not yet been found. It is a set of letters, every one of the alphabet, and an ink pad or more likely a paint pad. The handles resemble those of butter prints and of similar size. At the end a letter was cut by hand in relief on the square block, about one inch in size. The paint pad has a larger handle and a larger round end, covered with a piece of soft leather or possibly of cloth long since hardened. This was soaked in the desired color paint, the letter pressed into it and then stamped on the piece to be lettered. Tubs and boxes have been found with full names or initials, sometimes in color but more often in black, showing to

whom the article belonged. The first box to start my collection of wooden ware, now numbering 750 pieces, was an old cheese box, painted green, with a name on the bottom stamped in yellow.

Well Bucket

A very ingenious contrivance is found on some well buckets—a trap door in the bottom. A hole of the desired size was first made. Then a board was cut with corresponding di-

mensions, but a trifle larger in order to fit over the hole and not into the hole. This was fastened on the inside of the bottom of the bucket by means of a leather hinge. As the bucket was lowered, the trap door opened and this allowed the bucket to sink rapidly. As the bucket was lifted, the weight of the water forced the door shut and the bucket reached the top of the well full. Lowering and filling took less time than it did with the ordinary bucket, even if water leaked through the door as soon as the bucket left the well.

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Tool Notes

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France, but it is to be found in the first edition of Felibien's *Des Principes de L'Architecture* published at Paris in 1674.

SCREW (p. 254). Although the earliest specimen of screw in the Armor Collection of the Metropolitan Museum of Art, New York, was (in 1928) one in company with three rivets in an Italian 15th century war hammer, and the second oldest in the saddle armor of Jacques Galiot De Genouihac, dated 1527, it was not until after 1550 that examples became more plentiful. Of those 16th century screws examined, all were threaded by the file, and gimlet pointed. It is fairly safe to assume that they were used only by armorers, locksmiths and instrument-makers at that time. Jacques Besson's *Le Cosmolabe* (Paris, 1567) shows screws with gimlet points and thumb grips and a button headed set screw.

The earliest types of screws were not made to be counter-sunk. The earliest surface-applied hinges did not require flat-headed screws for fastenings—nor any screws at all for that matter.

Although the butt-hinge was known in France in 1674, the invention of the cheap cast-iron butt hinge in 1775 (Izon and Whitehurst, British Patent, October 3, 1775) must have done much to stimulate the manufacture of flat-topped screws.

GLUE (p. 262). The survival of ancient tools and methods through the ages is well illustrated by glue. The monk Theophilus, writing (c. 1100 A.D.) in his handbook on the crafts associated with church building, gives the receipt for cheese glue — "Soft cheese is cut very small and washed with warm water in a small mortar with a pestle until, being frequently poured in, the water comes away pure. Then this cheese, compressed by the hand, is put into cold water until it hardens. After this it is very finally ground, with another piece of wood, upon a smooth wooden table, and in this state it is again placed in the mortar, and is carefully ground with the pestle, water mixed with quick lime being added, until it is made as thick as lees."

"The tablets of altars fastened together with this glue, after they are dry, so adhere together, that neither heat nor humidity are able to disjoin them."

Cennino Cennini, writing an artist's workshop manual in the fourteenth century, speaks of this same glue: "There is a glue used by workers in wood which is made of cheese put into water to soften. Rub it down with a wooden pestle with both hands, adding a little quick lime. Apply it to the boards you wish to join, unite them and fix them well together."

We are told that cheese glue is mentioned in another work in the Byzantine tradition, called the *Lucca MS*, translated at least in part from a Greek original and written in an Italian hand of the eighth century.

Dr. Thomas Shaw in his book of travels, published at Oxford in 1738, wrote of the Moors: "Instead of common glue, the joiners frequently use a preparation of cheese, which is first to be pounded, with a little water, in a mortar, 'till the wheyie matter is washed out. When this is done, they pound it again with a small quantity of fine lime, and apply it afterwards as quick as possible to such boards as are to be joined together, which, after the cement becomes dry, will not be separated, I am told, even by water itself."

Cheese glue in the eighth, twelfth, fourteenth, sixteenth (a quote from 1562: "When stone pottes be broken, what is better to glue them againe . . . like the syment made of cheese") the eighteenth and the nineteenth centuries (Dr. Ure, who wrote in 1843, "The curd or caseum is employed—slices of skim milk cheeses are boiled in a great quantity of water and then incorporated with quick lime on a slab with a muller or in a marble mortar.")

In this twentieth century we buy our cheese glue in powder form at the hardware store. Called a casein glue, it is sold under a trade-marked name. Still used because it is strong and water proof, it is one of the oldest of our modern preparations.

CLAW HAMMER (p. 264). The modern carpenter, in two instances observed — Brooklyn, N. Y., and Solebury, Penna., — had a hole drilled in the butt of his hammer handle, which was filled with soap into which he stuck the points of wire nails before he hammered them into hard wood. This makes nails easier to drive.

SCREW DRIVER (page 268). The first quote in the *Oxford English Dictionary* for "Screw driver" is dated 1812 — but it is mentioned fourteen years earlier in the *Encyclopedia Britannica* (3rd edition), printed at Philadelphia in 1798, where, under *Navigation*, the screw-driver is shown and named. The screw-driver is shown among the tools of the marquetry worker in Felibien's *Des Principes de L'Architecture*, Paris, 1674.

The earliest known reference to screw drivers is to be found in the *Greek Anthology* (Loeb Edition, Vol. I, p. 405) in a dedicatory epigram written by Leonidas of Tarentum who flourished in the third century before Christ:

"These are the tools of the carpenter Leontichus, the grooved file, the plane, the rapid devourer of wood, the line and ochre box, the hammer lying next them that strikes with both ends, the rule stained with ochre, the drill-bow and rasp, and this heavy axe with its handle, the president of the craft; his revolving augers and quick gimlets too, and these four screw-drivers and his double-edged adze—all these on ceasing from his calling he dedicated to Athene who gives grace to work."

The screw-driver was not a common carpenter's tool and screws were rare at an early date, yet in this, the earliest known mention of the screw-driver, we have not one but four! One wonders whether this was poetic license or had the Greeks a similar name for some other bladed tool which has misled the translator? Not being a Greek scholar nor having one handy, this must remain a mystery for the present.

From MR. FRANK K. SWAIN:

"Dr. Henry C. Mercer had a big show down here at Doylestown in 1897. Twenty-five old men and women did all kinds of things before the meeting. A 90-year-old man, Abe Delp, reaped imaginary grain with a sickle and a handsome old judge, also 90 or more, leaned over and gasped out, 'How many shocks a day could you do?'

Old Delp — 'Ninety.'

Old Judge — 'Huh, that's nothing. I could do 110.'

Old Delp — 'See here. I can do as many as you any day and a d - - sight more.'

The meeting was a great success with a half dozen squabbles like the above."

Early American Industries Association

Early American Industries Association

LEWIS N. WIGGINS, President,
Northampton, Mass.

J. D. HATCH, JR.,
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Communications should be addressed as follows: Pertaining to the *contents* of THE CHRONICLE, to Mr. Sprague. Suggestions for prospective members to Mr. Bacon. Other matters, to Mr. Hatch. Addresses as here given.

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Our Purpose

The purpose of the association is to encourage the study and better understanding of early American industry, in the home, in the shop, on the farm, and on the sea, and especially to discover, identify, classify, preserve and exhibit obsolete tools, implements, utensils, instruments, vehicles, appliances and mechanical devices used by American craftsmen, farmers, housewives, mariners, professional men and other workers.

Dues

The annual dues are payable September 1st, and are as follows: Regular members $1.00; Contributing members, $2.00; Supporting members, $5.00; Sustaining members, $10.00 and up. There is no distinction between the classes, except the amount of the dues, but the publication of THE CHRONICLE cannot be financed unless a considerable number of the members pay more than $1.00. Each member is expected to voluntarily place himself in the class which represents the amount he is willing to contribute to the support of the Association for the current year. THE CHRONICLE is sent to all members without additional charge. Many of the back numbers may be secured from the Treasurer for from 20c to $1.00 each, according to the supply on hand, and a twelve-page index to the twenty-four numbers of Volume I, containing a useful bibliography, for $1.00 each. For further information, address any of the officers.

Shot Tower

We are indebted to Mr. J. D. Hatch, Jr., for the following description of Paul Beck's shot tower at Philadelphia, from an entry of May 12th, 1814, in the manuscript diary of Erastus Skinner:

"—— Went of Paul Becks Shot Tower; went into it and all over viewed it. The Shot manufactory or Tower is square, 38 feet at bottom and 15 at top. Wall 5 feet thick at bottom and 14 inches at top. 166½ feet high, ascended by 262 steps winding round and inside. At the top is 2 small furnaces, where the lead is melted. And then turns into a copper seive at the top; is shook all the time, and falling so far separates the lead into different sizes. After which the shot are sifted to get the dust and peices of lead which are not in shape out and then put into a barrel with Blklead (sic) where they are rolled or churned to make them smooth and glossey. Afterwards put into a set of seives made of parchment perhaps 12 or 14, one above the other. The top one large enough for Buck Shot, the next smaller, and so down to the lower which is very small. They are all shook at once and the shot go through untill they get to their proper size where they remain and are numbered accordingly. The lead and wood is carried to the top by a windless or tackle drawn by a horse. Have a fine view from the top of the tower—see all the city and country."

Clover Stripper

(*Continued from page* 147, *column* 2)

Second-crop clover is shorter, less leafy, and contains more and better seed and it was not necessary to thresh out every seed because the threshed heads were cast over pasture or meadow lands or on bare spots in grass fields so that any seed remaining could take root.

Long after clover seed was sold in country stores, by the quart, pound or bushel, cautious farmers were afraid of introducing strange weeds from New England or the south or increasing those already established, so they continued to select their best clover patch, free it entirely of weeds, and harvest their own clean seed.

The machine here shown is now in the Museum of the Bucks County Historical Society and an exact duplicate, minus the wheels, is in my own museum and this too came from the Hilltown district. Price, when a boy, used a third on his father's farm in Hilltown. This does not prove a general distribution all over the country but the three were man-drawn, used a good deal and were successful although perhaps not labor-savers. The failure of the others was probably on account of their being horse-drawn and clogging up faster than a man could work the rake.

When Dr. Mercer lectured in New York and Boston, he showed charcoal drawings of the grain reaper described and illustrated by Pliny, the Elder (born 23 A.D. in Italy) and of the clover stripper, because he believed the latter was a copy of Pliny's machine on a smaller scale. The machine shown by Pliny was large, heavy, and had wheels high enough to lift the comb-box two or more feet above the ground. An ox was geared back of the machine and pushed it ahead through the grain, stripping off the heads. Had it been a success there would be no reason for abandoning it, and it is rather extravagant of Knight, (*American Mechanical Dictionary*) or anyone else, to say it continued in favour, in Gaul, for 300 years. Proof that there was no workable reaper for 1800 years after Pliny lies in the fact that, as late as 1890, grain sickles or toothed *reaping hooks* could be gathered by the wagon load and grain cradles by the score.

What Dr. Mercer believed and said was that some ingenious mind, seeing the clover stripper at work, ripping, tearing or stripping but never cutting, realized what it would mean to agriculture if it could cut and later invented a sliding knife inserted under the teeth. The modern mowing machine, reaper, and reaper-and-binder are just that—a sliding knife under fingers that guide the grass or grain to the knife blades, and this sliding knife revolutionized the whole agricultural industry, opening up vast areas that were useless with manual labor alone. The simple little clover stripper may be more important than we have thought.

On July 7th, 1887, I saw Mr. and Mrs. Joseph Neff of Spring Valley, Penna., reaping their small field of grain with the old saw-toothed reaping hooks, in spite of Pliny or the Gauls.

Metal Spinning and Stamping

By L. L. Thwing

If perchance there is someone beside myself who is interested in the history of hollow metalware, he is warned that I have almost no information on this subject. As a society, we know quite a little about the tools and methods of early craftsmen. We know how iron was forged and machined; how wood was cut and turned; how glass was blown and how pottery was made. We even know something about the trades of the hornbreaker, the fellmonger and the seiler, and these are very old trades. Metal spinning and stamping are recently developed processes, but just how recent is not known.

There are three methods of making such a thing as a small brass kettle out of a single piece of metal. One—the oldest—is to beat it out on stakes and anvils; the second is to spin it over a wooden form in a lathe, and the third is to force it into shape in a die held in a power press. Metal beating is the oldest of all metal-forming processes and we still have coppersmiths and "metal raisers." An outstanding example of this ancient art is medieval armor.

Metal spinning is a sort of continuous bending process. If a hollow hemisphere is to be made, a disc of metal is attached to a solid hemisphere and both are rotated in a lathe. Then with a very long hand tool, pressure is brought to bear on the disc to bend or force it against the form. It may be necessary to anneal it before the job is finished, but in the end the metal disc is forced tight against the form, the edge is trimmed, and the piece is done. How long this method has been used, I do not know. It might be assumed that goldsmiths would be the first to avail themselves of this method of making small hollow pieces. Gold is a malleable metal, and little power is required to spin it. However, there is no evidence of this. Considerable power would be required to spin a gallon-size brass bowl, and a very rigid headstock in the lathe. For this reason it is doubtful if pieces of this size have been spun for more than a hundred years. From the standpoint of production, metal spinning has little to recommend it, as most shapes can be made more cheaply by stamping.

Die stamping of the sort used to impress a design on a coin or medal, must be an ancient art, as coins are very old. Stamping out hollow-ware is a different process, one that requires more power and machinery. If 10,000 brass bowls were to be stamped or drawn, a steel "die" the exact shape of the outside, and another the shape of the inside would be made. These would be mounted in a power press with a heavy fly wheel; a disc of brass would be centered over the hollow die, and the solid die would come down and force it into the former. A hemispherical bowl is an easy thing to draw as the curves are so easy. Pieces with sharper curves, and pieces the depth of which is much greater than their diameter, have to go through two or more drawing processes before they are finished. A press which could do this would weigh four or five tons and require twice as many horsepower to operate it. Evidently there were no such machines a century ago, but were similar operations performed on a smaller scale, or by similar methods involving no machinery?

I have often wondered how certain old lamps were made. Betty lamps—or some of them — are flat heart-shaped pans with the sides at right angles to the bottom. They seem to be made from a single piece of sheet iron. Certain whale-oil lamps have a top-shaped oil font of curved outline. The betty lamps were probably made before 1800 and the whale-oil lamps some years later. I have read somewhere that such things as crusies and betty lamps were formed in a die or mold cut into a granite block. A sheet of hot iron could be forced down into this by a solid die of the same form but smaller, by blows from a sledge hammer. Some of these lamps are so smooth and free from any suggestion of hammermarks, that it seems as though they must have been formed in or over a mold.

The font of the whale-oil lamp is evidently made of two pieces soldered together, but neither of these pieces could have been made by rolling up a sheet of flat metal. Both were evidently made in smooth metal dies, but were these dies held in screw presses, which were used as early as 1750 for coinage? These act so slowly that a sheet of iron would lose most of its heat before the work was half finished. Or was it done in a falling weight type of press? These were used in the 17th century, or earlier, to drive piles, but might in this case act too quickly, not allowing the metal time to flow into the desired shape. Or was some crude form of power press used — something of the sort used to draw the previously mentioned brass bowls?

It is easy to suggest methods which *might* have been used, but what we want to know is, what was actually used, and how long have metals been either spun or drawn? If anyone has even a little to add to the very slight amount of information here displayed, it is earnestly hoped that his hand may not be stayed.

Simmons Museum

We quote from a circular issued by the Simmons Private Museum:

"Our primitive collection, centering about the old farm and fireplace, provides a vivid and accurate background for history by showing how people lived, worked and played. A grand collection of the things of the many-sided life of the past.

"Here the visitor may see how the folks of long ago built their cabins and the fine old things that provided necessary comfort for the homes of yesteryears; how they tilled their fields and kept their stock; tools for spinning, weaving, cooking; in short just how they lived from the cradle to the grave.

"Over 5,000 articles for your seeing pleasure. Some 87 quite complete collections.

"Old time wooden plows and drags.
Ox cart and ox yoke collections.
Early tools of the Palentine settlers for sowing and harvest.
The great hand wheel.
Broom corn tools.
Pots and skillets of the fireplace.
Hand forged tools, no end.
Early lighting.
Water log tools.
The mammoth dog power.
Tools of the old time cobbler.
Some sixty jugs and crocks.

"At the Simmons Mu-Z-M
Up the Bears Gulf Valley
Richmondville, N. Y."

State Highway No. 7. Off on No. 10 under the light. Take 2nd right up hill. Keep coming for two miles. Open day or evening.

Early American Industries Association

Membership

Membership lists should be amended as follows: (N) indicates new member; (S) indicates non-member subscriber; (Ch) indicates change of address; (D) indicates decease; (R) indicates resignation; (Co) indicates correction.

CONNECTICUT

Devon: Rogers, Edward H. (R)
Litchfield: Beach, Milo D. (N); Camp, Arthur G. (R); Seymour, Origew S. (D)
Suffield: Van Horn, Mrs. John B. (R)

DELAWARE

Wilmington: Geesey, Thomas C. (N)

INDIANA

Howe: Samson, Lewis N. (R)

MASSACHUSETTS

Kingston: Weston, Mrs. H. J. (R)
Lakeville: Wright, W. L. (R)
Middleboro: Middleboro Public Library (S)
Northampton: Forbes Library (R)
Southbridge: Wells, J. C. (R)
Worcester: Hall, Mrs. Elizabeth W. G., 6 Maplewood Rd. (N)

NEW HAMPSHIRE

Portsmouth: Converse, Miss Alice G., 275 Islington St. (Ch. from Southbridge, Mass.)

NEW JERSEY

Chatham: Moore, Dwight D. (Ch. from Boonton, N. J.)
East Orange: Britton, William R., 23 State St. (Ch)
Essex Falls: Bartholomew, Mrs. G. P. (R)
Maplewood: Hoffman, Edgar F., 8 Colinwood (N)
Montclair: Chatellier, Mrs. John (R); Stern, Mrs. Edith (R)
Morristown: Weig, Melvin J., Morristown National Historical Park (Ch)
New Brunswick: Krueger, W. C., Agriculture Station (Co)

NEW YORK

Copake Falls: Carell, John J. (Ch. from New York, N. Y.)
Flushing: Willets, Chester A. (R)
Hamilton: Whitnall, Harold (R)
New York: Harrison, John T. (R); Pennoyer, A. Sheldon (R); Sarfer, Albert, 10 Astor Pl. (N)
Rochester: Rochester Public Library (R)
Schenectady: Howgate, James C., 120 S. Church St. (Ch. from Albany, N. Y.)

OHIO

Lakewood: Strietel, Francis H. (R)

PENNSYLVANIA

Lancaster: Hostetter, Mrs. A. K. (R)
Philadelphia: Lichten, Francis N. (R)
Solebury: Sandford, Joseph E. (Ch. from Brooklyn, N. Y.)

RHODE ISLAND

Rumford: Dodge, W. B. (R)

VERMONT

So. Londonderry: Swan, Ripley A. (N)

VIRGINIA

Nuttall: Toliaferro, W. F. (R)
Williamsburg: Farish, Dr. H. D. (R)

WASHINGTON

Bellingham: Cavilli, Miss Florence, 2729 Grant St. (Co and Ch)
Seattle: Smith, Charles W., University of Washington Library (N)

The Questionnaire

Questionnaires recently received have been tabulated as follows. For key to abbreviations, see page 7.

DELAWARE

Wilmington: Titus C. Geesey, "Longago," R. D. No. 2 (C). Collects HD, KH, LD, TA, TC. Wants early candle-dip and dough mixer. Wants LP. Write *. Visit.

MASSACHUSETTS

Worcester: Mrs. Elizabeth W. G. Hall, 6 Maplewood Rd. (C). Collects ink-bottles and ink-wells of wood, tin, soapstone, glass, pewter, etc. Write *. Visit.

NEW YORK

New York: Miss Janet Rosenwald, 57 Charles St. (C). Collects KH, also bark snuff boxes, reputedly made and used by trappers. Has for sale a set of embroidery stamps. Write only *. Visit.

PENNSYLVANIA

Altoona: Earl W. Dickey, 2417 2nd Ave. (C). Collects FT, KH, LD, TC. Wants LP. Write. Visit.

RHODE ISLAND

Providence: Rhode Island Historical Society, 68 Waterman St. Exhibits historical relics pertaining to Rhode Island. Wants LP (by gift or exchange). Open 9 to 5 daily, 3 to 5 Sundays; also Tuesday evenings, 7 to 9.

Essex Institute

The Essex Institute, at Salem, Mass., with its large and complete collections of items, one to three centuries old, interests all, but many who come from a distance, with little time to spend, miss seeing and learning about items with stories about them.

For instance, in the old time kitchen of 1750 with its crude appliances, is shown on the shelf over the fireplace, a piece of wood that looks like a shingle, with the corners burnt off; that was given by a Miss Tappan of Manchester, who said she saw her grandmother spread corn dough (johnnycake) on it and bake it before the open fire, with a flat iron to hold it up. No other museum has one, as far as can be learned. They were probably split up for kindling when stoves with ovens came into use.

Alongside this board on the shelf, is a lantern with sheets of horn instead of glass. The original name was "horn lamp" later called lanthorn, and now lantern. The early stoves had no ovens.

Following the open fireplaces with the big chimneys, was the Franklin fireplace, with a large iron flange in front for protection from falling brands or sparks. Later, when coal began to be used a century ago, came the hob grate, a great advance in heating and limited space. That was the first real advance in heating houses.

The Institute has on exhibit in its Annex, behind the Museum, a remarkable collection of early stoves, some with and some without ovens, also a large variety of implements and appliances used in connection with them in those days. They include a goodly number of firebacks which had to be used in open fireplaces behind the logs, when bricks were soft and burnt out quickly. Two of them were made at the early Saugus Iron Works, and are dated 1660 and 1662, the latter used in the Pickering house, built 1651, the oldest house in Salem. (The Annex is not heated and is closed until warm weather comes again.)

The Institute has examples of the mulling stone used by early apothecaries to mix drugs by hand to make into pills, which doctors (one at least known) kept in their waistcoat pockets and passed out to their patients to "take." One of these small mullingstones is in the old apothecary shop in the Ward house (1684). Recipes of a century ago, were entirely written by hand by the doctor, and when it was filled at the drug store, it was stuck on a pointed spindle, possibly with a written number to identify it. When the spindle was full, the recipes were transferred to wires. The Institute has three of these wires in the old shop. Two of them were obtained from the old Dr. Endicott drug store, Cabot street, Beverly, and the third from an old drug store on Main street, Gloucester.

The old bottles with original contents were given to the Institute for this replica of a drug store, by Dr. Brooks, who for long years, kept a shop on Lafayette street, under the old Methodist church which was burned in the Salem fire of 1914. The building containing the frame of the First Quaker meeting house in the Institute yard is full of early models of sewing machines, typewriters, agricultural and other tools, not readily found elsewhere. W. H. R.

COMMUNICATIONS

From MR. J. EARLE BACON:

"I was greatly interested in Mr. Ewan's article on up-and-down saw mills. We have a number of the parts of one that was operated within three miles of the South County Museum no more than twenty-five years ago. Probably the wide native hemlock boards of the walls of the museum were sawed by it and show a quarter-inch cut. The barn was built about sixty-five years ago. We dug three of the old saw blades out of the mud in the bottom of the race and they are, I presume, of quite some age. The teeth are one and seven-sixteenth inches between points and an inch deep. Perhaps the most interesting portion we have is a shaft nine feet long and ten inches in diameter, of hickory I think. It is beautifully made and has the cuts around it showing the width of the log carriage. Near one end is a wooden wheel, three feet in diameter and four inches thick, solidly built up of splendid mortises, with a heavy iron band around it. Around the inner face of it, about three inches in from outside, is a row of large wooden cogs with an arrangement for advancing them as they wore. This was simply to advance the log carriage and must have been capable of adjustment for the different cuts necessary for different sorts of wood. We have a timber, with similar wooden cogs, which was one of the lengthwise beams of the carriage and engaged the cogs of the wheel. This rig had been out of use a long time and I am told it was driven by a separate sluice with a small overshot wheel. It simply carried the carriage to the end of its forward run; it was then pushed back by hand. Of course a chap with one of these did not invest in a quantity of new equipment and a rotary saw as long as it served his requirements. It would cut about 2,000 feet a day and his neighbors brought a few logs from time to time but did not expect delivery till 'Jake finished his plowin'.' Time was not of such moment in those days; it was a 'stream to go fishin' in'. I am told that less than three actual horse-power will easily drive a single saw, so, many times when the chap had more power, he set more saws, especially in the spring when the water was rushing. I have been told by several old men of one mill here in Rhode Island, which had six saws, 'a six gang outfit, that wuz'. The Disston Company publishes a very interesting little booklet telling of the years between 1825 and 1840, when the effort was being made to produce a satisfactory detachable tooth for the rotary saws. We have an early one made of one piece of metal. These proved very unsatisfactory as the teeth were constantly breaking and sharpening was a difficult job."

From MR. C. CARROLL PALMER, *Secretary of the New Jersey Chapter*:

"The spring meeting of Sprague Chapter Number One of the Early American Industries Association was attended by about 30 members and guests on Saturday, May 10th, at the Monmouth County Historical Association, Freehold, New Jersey. This followed an executive committee meeting and luncheon at the Christopher House. Mr. Wallace K. Brown presided and called for reports of the officers. The nominating committee report resulted in the election for the third term of Wallace K. Brown as Chairman and C. Carroll Palmer as Secretary-Treasurer. Mrs. Aline K. Wolcott was appointed to serve as chairlady of a Membership Extension Committee. Mr. Connor and Mr. Palmer were thanked for their helpful services and interesting display at the booth of the Association during the New York Antique Show. Mr. William H. MacDonald of Trenton, N. J., lectured on 'Nineteenth Century Chair Makers of West Monmouth.' He displayed work benches, tools, patterns and completed labeled chairs. The different steps of construction, seating and final painting were carefully described. The output of many well-known chair makers were specifically noted by the speaker. Many paper cut-out stencils showed the motifs to consist of wheels, roses, fruit, vines, baskets, animals and many other conventionalized patterns. Mr. Francis D. Brinton, of West Chester, Penna., and Mr. C. Carroll Palmer, of Plainfield, N. J., displayed and described several tools and gadgets brought in for discussion or identification. Mr. William S. Holmes, President of the Historical Association, invited those present to view the three floors of neatly arranged exhibits. They covered a very broad field from the crudest to the finest in furniture, glass and china. 'Pick and Shovel' items make up the entire upper gallery. Mr. Holmes also gave directions for a pilgrimage to Middletown, New Jersey, to enable all to visit Marlpit Hall, a restored early American farm house, owned by the Association. In charge of all arrangements was our member-hostess, Miss Edna M. Netter."

From MR. JOSEPH E. SANDFORD:

"John Watson wrote in 1842 (*Annals of Philadelphia*) — 'What were called roram hats, being fur faced upon wool felts, came into use directly after the peace, and excited much surprise as to the invention.' This is borne out by a quotation from a Philadelphia newspaper *The Aurora* for January 2, 1796 — and Alice Morse Earle in her *Two Centuries of Costume in America* (N. Y., 1903), says that 'Roram was a wool or felt, with a facing of long beaver fur felted in.' The 'first step toward an imitation of the old and well-beloved beaver hat . . . Beaver was growing scarce and imitations were sure to be made.'

"Thornton notes 'Roram hat' as late as 1848. The *Oxford English Dictionary* is without the word and it seems to be American. It is probable that is the same hat that the English called 'plated.' It answers that description. The use of shellac as a varnish for hat stiffening is called 'the greatest modern improvement in hat making' by the *Penny Cyclopedia* (1839). It seems to have come into use about 1815, beside 'waterproofing' the felt it gave a body to the stuff so that, 'instead of taking 96 ounces for a dozen ordinary sized hats, 33 to 34 ounces will do the same number,' wrote M'Culloch (*Dictionary of Commerce*, London, 1835)."

From MR. CARL W. DREPPERD:

"Among other of my interests in the field of Americana I am paying attention to early American packaging. In this field, I want to study the early use of *plastics*—as exemplified in the production of Daguerreotype cases and other boxes. I have only one. And it bears the advertisement of the makers, Littlefield, Parsons & Co. 'the only manufacturers of UNION cases with the embracing riveted hinge, patented Oct. 14, 1856 and April 21, 1857.' Have you any collectors of such cases on your list and any data re the makers in the United States?"